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## A CASE OF SECTION OF THE MEDIAN AND ULNAR NERVES.

BY JAMES J. PUTNAM, M. D.

THE publication of this case is justified by the fact that, from its peculiar nature, it illustrates very well certain points concerning the distribution of the cutaneous nerves of the hands and fingers.

The patient, a young man in good health, in manipulating the sash of a window accidentally drove his hand through the pane, inflicting a deep flesh wound on the front of the wrist, from about the median line almost to the ulnar border of the arm, leaving behind it, in healing, a scar of about one inch and a quarter in length. The early history of the case may be passed over as unimportant in this connection. The patient was first seen by me, in the out-patient department of the Massachusetts General Hospital, five weeks after the accident, and at that time the characteristic features of his condition, as regards the anæsthesia, the atrophy of the muscles of the hand, etc., seemed essentially as at a later period, but owing to the presence of symptoms of irritation of the nerves, as well as of inflammation of the tissues about the wound, no careful examination was made until a few weeks afterwards. At this time all the muscles of the hand were found completely incapable of responding to voluntary impulses or to the induced current, while all responded with especial readiness, and with the familiar "wave-like" motion, to the stimulus of weak galvanic currents, particularly when the positive pole was applied over them (at least this latter point was noted at a later time); some of them, however, — the adductor pollicis, the first interosseous, and some of the muscles of the thenar eminence, — more readily than the rest. In the course of the two months following, several careful examinations were made with a view to determining the limits of the anæsthetic district, with results which varied somewhat, though for the most part unessentially. The examination which formed the basis for the statements made in this paper, illustrated also by the diagrams which accompany it, was especially protracted and minute, and the results may, I think, be relied upon as accurate. The manner of expressing the various degrees of anæsthesia is essentially that adopted by Dr. S. Weir Mitchell: the three zones representing respect-

ively the regions where (1) sensation was absolutely lost; (2) the sense of touch was lost while strong impressions were still felt; (3) the sensibility of the skin was only slightly modified. For the production of powerful excitations the skin was pricked deeply with a needle, or was touched with a *single wire* connected with one pole of an induction battery, the other pole being represented by a pad placed on the moistened skin at a distance. It has been claimed that the use of the wire brush is objectionable in these cases, as giving rise to indistinct sensations which are really due to excitation of nerve filaments at a greater or



(FIGURE 1.)

less distance from the point touched. It is true that when the whole brush is placed upon the skin a sort of thrill may be felt, which may be referred, for example, to the whole of a finger, and may be supposed to obscure other sensations due to the local irritation; comparative experiments, however, failed to convince me that, in this case at least, such objection could fairly be raised against the use of a single wire. The slight sense of vibration which was occasionally, though rarely, spoken of by the patient was always distinguished with readiness from the acute local pain, and the limits of the anæsthesia as thus obtained did

not differ materially from those obtained by the use of the needle, where the effects of the two irritations were compared. On the other hand, the two methods are not to be compared from the point of view of convenience.

For estimating the sense of touch a feather was used, or, what seems equally good and is often more convenient, a bit of twine two or three inches in length. For estimating the lesser degrees of anæsthesia Dr. Mitchell uses the æsthesiometer. Experiments were made with it in this case, but the results did not seem to me sufficiently satisfactory to deserve notation; less so than the statements of the patient as to whether the sensations excited by a light touch were "natural" or "unnatural."

The information given by the diagrams may be supplemented by the following remarks.

It is evident, from the fact that the sensibility of the skin over the back of the little finger was unimpaired, that the dorsal branch of the ulnar nerve, which is given off before the nerve enters the hand, escaped section in this case, and a good opportunity is therefore furnished for studying its distribution. One branch of it seems, whether normally or not, to supply, in part, the whole palmar surface of the first phalanx of the little finger.

The mode of distribution of the median and ulnar nerves to the backs of the fingers corresponds almost exactly with that established by the careful dissections of Richelot.<sup>1</sup>

The statement of Létiévant, that a vibratory irritation, such as may be produced by drawing the point of a pin or a stiff piece of paper across the skin, may be transmitted through anæsthetic parts to the still healthy nerve filaments of adjacent regions, and give rise to an indefinite feeling which may be mistaken for a sign of preserved local sensibility, could be distinctly confirmed in this case with regard to the end of the forefinger.

On the other hand, the impression left by Létiévant's statement, namely, that if sufficiently strong excitations are chosen the space within which the anæsthesia is complete will generally be found to be quite small, was not strengthened by the examination of this case. The limits of the complete anæsthesia were sharply defined, and only exceptionally a point could be found a little distance within the line where a strong excitation could still be felt. A deep burn was received on the dorsal surface of the second phalanx of the middle finger without the knowledge of the patient. It healed well, but even strong irritation of its exposed base was unfelt. It is well known that Arloing and Tripier have affirmed, with regard to dogs, that the whole skin over each paw is

<sup>1</sup> Archives de Physiologie, No. 2, 1875. The JOURNAL for September, 1875, vol. xciii., No. 2. Report on Anatomy, Dr. T. Dwight.

supplied with some degree of sensation by each of the main nerves of the limb, but the rule evidently does not hold for man. Among the cases collected by Létiévant, to be sure, there are some which seem to warrant the possible validity of such a view, but many others are reported (by Mitchell, Richelot, and others) where, as here, the anæsthesia was complete over the greater part of the space which we have anatomical reasons for believing to be supplied by the injured nerve (of course the existence of well-known anastomoses being taken into consideration).



(FIGURE 2.)

The condition of the sensibility of the palm of the hand is worthy of notice. The line limiting the anæsthesia will be seen to correspond quite nearly with the arterial palmar arch, and anteriorly it corresponds quite well also with the line at which, according to Rüdinger's atlas, a number of terminal fibres of the median and ulnar nerves, coming up from below, pierce the palmar fascia, passing, apparently, to supply the skin of the palm further forward. The central part of the palm, therefore, is evidently supplied mainly, in this case at least, either by a branch of the median, given off above the point of section, the *nervus cutaneus palmaris*, or by the *nervus cutaneus brachialis medius*.



For the sake of completion, two facts still deserve mention. At the second of the earlier examinations of the patient, the skin over the dorsal surface of the second phalanx of the ring-finger was found somewhat sensitive to powerful irritations, and, supposing the observation not to have been faulty, this shows that this region must have been supplied by a few fibres from either the radial or the dorsal branch of the ulnar, which at a later period became degenerated.

Between the thumb and forefinger was a spot where light rubbing caused a thrill to run down the radial side of the forefinger, indicating the presence there of an inflamed nerve twig, probably belonging to the radial nerve.

At the time of writing, which is six months after the accident, the voluntary power of the patient over the muscles of the hand has not shown any signs of gain, but according to a recent incomplete examination the anæsthesia seems to have withdrawn itself within somewhat narrower limits, at least as regards the palm of the hand.

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A REPORT ON THE PERCENTAGE OF NEAR-SIGHT FOUND  
TO EXIST IN THE CLASS OF 1880 AT HARVARD COL-  
LEGE, WITH SOME ACCOUNT OF SIMILAR INVESTIGA-  
TIONS.

BY HASKET DERBY, M. D.

CHARLES W. ELIOT, LL. D., *President of Harvard College*:

SIR, — I present herewith the results of an examination of the eyes of the present freshman class, made in the month of January, 1877, and undertaken with the view of determining the percentage of near-sightedness in the class on entering college as compared with the percentage of near-sight that would be found to exist at the termination of the under-graduate course.

Near-sight, or myopia, is by no means the innocent affection that ordinary text-books on physiology have so long represented it. Perhaps no idea concerning the organ of vision is more firmly grounded in the popular mind than that a near-sighted eye is a *strong* eye, the difficulty depending on an undue convexity of the crystalline lens or of the cornea, and likely to be corrected in after-life by the flattening of one or the other. This is wholly false. Near-sightedness depends on a change in shape, an elongation of the eyeball; its progress, on an increase of that elongation; its dangers, on that elongation being pressed beyond the power of endurance of the tissues of which the organ of sight is composed.

Near-sight is either stationary or progressive. The former variety is, unfortunately, comparatively rare. Having remained at the same point up to about the fortieth year, it may afterwards even slightly

decrease, as the crystalline lens flattens and the pupil contracts, thus neutralizing to some extent the unnatural length of the globe.

This state of things is, however, the exception; progression is the rule. The words in which this is described by Donders have, for years, been classical: "When the increase in length of the eye has reached a certain point, its layers become so thin and their power of resistance so much diminished that the stretching process can *no longer remain stationary*, especially as the pressure in the interior of the myopic eye is generally somewhat heightened. The progressive stretching and the progressive myopia go hand in hand, *and here we have a true disease of the eye. I unhesitatingly proclaim a myopic eye to be a diseased eye.* High degrees of myopia are much less likely to remain stationary than slight degrees; even in advanced age they are liable to increase. Nearly all myopia is progressive in the young, its increase being often coupled with symptoms of irritation. This time of life is the critical one, for the myopic eye; if, during its continuance, the myopia does not appreciably increase, it may become stationary. If, however, it considerably advances, it will ultimately become more difficult to limit its progress. *This is therefore the time when special efforts must be made to guard against injurious influences.* On this point I can hardly lay sufficient stress. Apprehension must be entertained with regard to the future of every case of progressive myopia. For, if it constantly progresses, distressing symptoms soon arise, interfering with the usefulness of the eye. And, not infrequently, at the age of fifty or sixty, *in some cases even earlier*, vision may be irretrievably destroyed. Such an issue may be due to *retinal separation*, to *hæmorrhage*, or finally to *atrophy* (suspension of nutrition) and *degeneration of the macula* (the most sensitive portion of the retina)."

Modern science has fortunately provided the surgeon with a means of accurately measuring and expressing the amount of myopia present in any eye, and has also given him a formula for indicating the amount of vision inherent in that eye when furnished with the glass neutralizing its near-sight. Thus the myopia and the vision being measured and stated in simple figures, a subsequent examination would easily ascertain whether the myopia has progressed or the vision degenerated, and express it in the same simple manner. The difference between the first and second sets of figures would show the extent of the increase, the amount of the degeneration.

Such examinations have, for some years, been made on the continent of Europe, and recently in this country. A brief reference to their results will clearly demonstrate their utility.

The point they illustrate is the progress of myopia, due to the modern system of education.

The end in view is the elimination, as far as possible, of the special exciting cause or causes, when they are once ascertained.

About the year 1867, Dr. Cohn, of Breslau, examined the eyes of 10,060 school children and pupils. His results may be summarized as follows : —

In no village school was myopia found among children who had not yet completed their first half year of work. In these schools, taken as a whole, there was found 1.4 per cent. of myopia.

Taking all schools together, and following the scholars, at successive intervals, from the first half year to the fourteenth year of school life, the percentage of myopia was found to be the following : —

1st Half Year.	2d Half Year to 2d Year.	3d and 4th Years.	5th and 6th Years.	7th and 8th Years.	9th and 10th Years.	11th and 12th Years.	13th and 14th Years.
0.4	4.8	8.6	7.9	11.3	24.1	49.5	63.6

In 1871, Dr. Erismann published the results of his investigations of the condition of the eyes of 4358 scholars at various educational establishments in St. Petersburg. The pupils were aged from eight to twenty. Taking the classes in order, the fifth being the most advanced, the following results were obtained : —

Class.	Percentage of Myopia.	Class.	Percentage of Myopia.
Preparatory.....	13.6	III.....	30.7
I.....	15.8	IV.....	38.4
II.....	22.4	V.....	41.3

In 1874 and 1875, Dr. Conrad examined the eyes of 3036 school children in Königsberg.

He found the percentage of myopia to rise as follows : —

Class.	Percentage of Myopia.	Class.	Percentage of Myopia.
VIII. (youngest).....	11.1	IV.....	28.44
VII.....	15.8	III.....	44.39
VI.....	20.5	II.....	54.59
V.....	21.8	I.....	62.10

In 1872, 1873, and 1875, Dr. Reuss examined 1050 pupils at the gymnasia of Vienna.

His results are here shown : —

Class.	Percentage of Myopia.	Class.	Percentage of Myopia.
I.....	33.4	V.....	43.5
II.....	39.4	VI.....	47.7
III.....	47	VII.....	61.4
IV.....	48.2	VIII.....	59.6

After one year Dr. Reuss found forty-one per cent. of the myopic eyes unchanged, while the difficulty had increased in 47.7 per cent.

In the third year 28.4 per cent. only remained unchanged, while sixty-one per cent. had grown more near-sighted.

In 1876, Dr. Pflüger published the result of his investigations in the schools of Lucerne, 1846 pupils being examined.

Myopia was found to be present in the following percentage, according to age : —

Year of Life.	Percentage of Myopia.	Year of Life.	Percentage of Myopia.
7	0	15	26
8	2	16	30
9	3	17	43
10	6	18	55
11	6.5	19	56
12	6	20	40
13	10	21	61.5
14	14.5		

In our own country, Dr. Agnew, of New York, has instituted examinations of the eyes of 1479 school children and advanced pupils in Cincinnati, New York, and Brooklyn. His results were published during the present year. They are as follows : —

CINCINNATI.		
School.		Percentage of Myopia.
District .....		10
Intermediate .....		14
High .....		16
NEW YORK COLLEGE.		
Class.		Percentage of Myopia.
Introductory .....		29
Freshman .....		40
Sophomore .....		35
Junior .....		53
Senior .....		37
BROOKLYN POLYTECHNIC.		
Department.		Percentage of Myopia.
Academic .....		10
Collegiate .....		28

From the foregoing figures the influence of study on the development and advance of near-sight may readily be appreciated. The facts speak for themselves.

It has occurred to me that by following the same class through its school or collegiate course, and noting the different phases that myopia assumes in the same individual at different periods of his career, results of much practical importance might be attained. A study of the cases where myopia most progressed might add to our knowledge of its cause, and increase our means of prevention.

I commenced in the fall of 1875 with Amherst College, and continued the investigation last autumn. The classes of 1879 and 1880 were required to report to me for examination, and were furnished time for that purpose. Twenty-eight per cent. of the former class were, in the

fall of 1875, found to be myopic. One year later fifty per cent. of these had grown more near-sighted. Twenty-seven per cent. of the latter class were found, early in their freshman year, to be myopic.

The kindness of the faculty of Harvard College enabled me to examine volunteers from the class of 1880, in January of the present year. One hundred and twenty-two presented themselves for that purpose.

Of these, 29.5 per cent. were found to be myopic.

The accompanying printed forms are filled in with the name and age of each individual, the state of each of his eyes as separately tested by glasses and the ophthalmoscope, the amount of his vision; and remarks on his previous history and family peculiarities in this regard. Blanks are left for a similar examination at the close of the senior year. Only a little over half of the class presented themselves. The percentage of near-sight corresponds to a remarkable degree with that obtained by Dr. Agnew in New York and Brooklyn, and by myself at Amherst. It is worthy of remark that *twenty-two per cent.* of the near-sighted members of the Harvard class of 1880 had, up to the time of the examination, supposed their vision to be normal.

The advantages of such examinations to the college student are manifest. He is enabled at no further outlay to himself than a trifling expenditure of time and trouble to obtain, at the outset of his collegiate career, important information in regard to the state of his eyes, their availability for study, and the course he must pursue to maintain their integrity or keep existing evils from increasing. At the termination of his under-graduate course he learns the effect of his four years of study, and is thereby enabled to form or modify his future plans; and in after life he can at any time, by consulting the college records, learn to what extent his eyes have varied from the condition they were in, and to what extent his vision has altered from the amount he possessed when he was an under-graduate.

But such examinations, to be reliable and truly valuable, require the attendance of the whole class. And I would respectfully submit to the consideration of the proper authorities whether, in view of the reasons now alleged for making and following up such investigations, it may not be found expedient to insist on every member of the freshman class passing this trifling ordeal on the occasion of his admission to college, and on his submitting to it once more just previous to the termination of his senior year.

I would here express my deep obligation to Professor Wolcott Gibbs, who took pains to arrange his lecture room and laboratory for my examinations, and placed them for several days at my disposal at considerable inconvenience to himself. Also to Dr. Wm. S. Dennett, of Boston, who materially lightened my labors by undertaking the ophthalmoscopic examination of every case, and furnished me with two hundred and forty-four (244) separate estimates of refraction.

In conclusion I would direct the attention of the faculty to the following points: First. Myopia is probably not, as commonly supposed, congenital. It is admitted that a tendency to the disease may be and is frequently inherited. Second, it has been shown by the very numerous examinations above cited that it occurs among school children at first in a very small proportion of the whole number, and that it increases with the course of study till, in many cases, not less than sixty per cent. of the graduates of European colleges and high schools are found to be myopic.

It is only by a most careful and thorough study of the disease, as prevalent in schools and colleges, that we can hope to devise means of preventing its extension and its progress in individuals.

[NOTE. As an appendix to the foregoing, I will briefly report a case that illustrates two points I have alluded to: first, the development of myopia in a person born emmetropic, but inheriting strong tendencies in the direction of near-sight; second, the rapid and alarming progress of unchecked myopia.

March 11, 1868. Saw this day for the first time Master M., aged ten. His father is quite near-sighted, and has for many years used concave glasses, what number I am unable to ascertain. His mother has in the right eye a myopia of 5.75 dioptics, left M. 4.5. The lad himself has *right* emmetropia, *left* M. 0.75. Interni strong; each fundus normal. He comes for slight asthenopic symptoms, and the refraction is merely noted incidentally. Vision of each eye normal.

November 1, 1870, M. 0.75 in each eye.

June 20, 1873, *right* M. 2.25, *left* M. 2.75. Patient is on his way to Europe. A course of atropine treatment is advised on his return in the fall.

I now lost sight of him for more than two years, during which time he was preparing himself for the examination to enter college. November 26, 1875, I found M. 4.50 in each eye, also in each a progressive posterior staphyloma. Atropine treatment and entire rest were again earnestly advised, but not concurred in by the parents.

The course of study has, notwithstanding all this, been steadily persevered in. At his last visit, March 1, 1877, Mr. M. had M. 5.50 in each eye by sight-test and ophthalmoscope, and each staphyloma was becoming marked. No suggestions with regard to rest or treatment were heeded.

Here is a progressive change, ranging in nine years from emmetropia in one eye and M. 0.75 in the other to M. 5.50 in each (M.  $\frac{1}{4}$  to M.  $\frac{1}{2}$  of the former series). I suppose it would have been perfectly possible to have arrested the myopia at any time during this period; in the outset, indeed, to have prevented it altogether. If the present use of the eyes be persisted in, the preparation for college completed, and



college itself passed through, the chances are that the myopia will go on increasing, and possibly an amount of structural change be brought about incompatible with the integrity of the eye through life.]

Boston, February 28, 1877.

## RECENT PROGRESS IN THERAPEUTICS.<sup>1</sup>

BY ROBERT AMORY, M. D.

*Croton-Chloral Hydrate; its Physiological Action and its Use in Neuralgia.* — Von Mering,<sup>2</sup> in a communication on the action of this drug, opposes Liebreich's theory, namely, that the alkaline character of the blood decomposes the salt into dichlorallylen, hydrochloric, and formic acids, and that the action on the organism is due to the presence of dichlorallylen in the blood. His objection to Liebreich's theory is based on the facts (1) that the trichlorcrotonate of soda will very readily in dilute alkaline solutions (even if cold) decompose into dichlorallylen, and (2) that the administration of the trichlorcrotonate of soda, even in a dose of five grammes (seventy-seven grains), produces no apparent effect on rabbits. Von Mering states, also, that the administration of both croton-chloral hydrate and chloral hydrate, even in the dose of .06 gramme (one grain), is followed by less frequent respiratory movements before reflex response to irritation of the cornea has ceased; the hypodermic administration of either drug produces a temporary fall of blood pressure in dogs, cats, or rabbits, whilst administration of large doses is followed by a constant low blood pressure. His experiments show, apparently, that chloroform, chloral hydrate, and croton-chloral hydrate enfeeble the arterial tonus, though the activity of cardiac pulsation still continues. This latter observation is derived from the co-existence of a continuous low blood pressure with great oscillations of the pressure curve. He concludes that all three drugs have a similar action on the circulation.

Dr. Skerritt<sup>3</sup> premises, from the fact that croton-chloral hydrate contains two more hydrogen equivalents than was originally supposed, that this substance is really butyl-chloral. This in small doses is an anæsthetic, in large doses a hypnotic. Its anæsthetic influences begin at the head and gradually extend to the whole body. He states, also, that the administration of large doses is followed by a slowness in frequency of the respiratory movements and pulse rate, that a fatal result is caused by arrest of respiratory movements rather than by cardiac paralysis; on the contrary, death after the ingestion of chloral hydrate is caused by cardiac paralysis. His explanation of the action of these two drugs

<sup>1</sup> Concluded from page 315.

<sup>2</sup> Archiv für experiment. Pathologie und Pharm., iii. 185.

<sup>3</sup> Lancet, December 9, 1876.



seems to be founded on Liebreich's researches, which, as may be observed above, are now opposed by Von Mering. Dr. Skerritt's clinical experience with croton-chloral hydrate in one hundred and twenty hospital cases at Bristol shows its great practical value in neuralgias of the fifth nerve. Those cases in which it proved most satisfactory were observed in young persons, especially anæmic women and girls. Eighty-six per cent. of the latter were either relieved or cured, whilst in older women this proportion was much smaller (fifty or sixty per cent.). Cases complicated with hysterical symptoms did not result so favorably. The special advantage of this drug consists in palliation of the pain until the condition of the general system shall improve; for instance, when tonic remedies have relieved the general anæmia and yet the headache still persists, croton-chloral hydrate abates this last distressing symptom.

A careful review of Dr. Skerritt's clinical experience compared with Von Mering's researches naturally suggests that the palliation of the headache is probably due to the property which the latter ascribes to croton-chloral hydrate, namely, sedative action on the vaso-motor apparatus, which may be due to the reduction of arterial tonus, or diminution of blood pressure in the arteries. In other words, it acts by inhibition of the vaso-motor centres.

*Lactic Acid as a Hypnotic.*<sup>1</sup>—E. Mendell, at a meeting of the Medical Society of Berlin, read a communication on the use of lactic acid to cause sleep. Its administration by the mouth, either in the form of lactic acid or lactate of soda, was uncertain, but he has met with great success by the use in enemata. Equal quantity of lactic acid and lactate of soda (five to twenty grammes, or seventy-seven to three hundred and eight grains) produced very efficient results. He advised its use in that form of insomnia which occurs during convalescence from debilitating disease, after hæmorrhages, or in insanity, etc. At a subsequent meeting of the above society, Senator remarked that he had given during the day ten grammes (one hundred and fifty-five grains) in divided doses, and five grammes (seventy-seven grains) in a single dose; he had observed that great weariness followed the continued administration, but that it was absent after the single dose; he had, moreover, observed an after-effect which had not been mentioned by either Meyer or Mendell, namely, the occurrence of rheumatic pains.

*Hyoscyamine as a Hypnotic.*—Mr. Robert Dawson,<sup>2</sup> in continuation of his researches on the physiological action of the active principle of hyoscyamus, contributes a paper on the therapeutical action of hyoscyamine on man. Following out the results of his observation<sup>3</sup> that this

<sup>1</sup> In the Fifth Report of the West Riding Lunatic Asylum.

<sup>2</sup> From the London Medical Record.

<sup>3</sup> Practitioner, July, 1876.

drug causes a subdued form of mania, associated with almost complete paralysis of the voluntary muscles, Mr. Dawson applied its use to certain patients who were maniacal and violent. He supposed that the quieter form of mania might be substituted for the very excitable cases, and that this effect in its turn would disappear, and leave the patient in a state of quiescence. One of these violent maniacs, addicted to self-mutilation, after a month's stay (on a second admission to the hospital) was given a grain and a half (0.097 gramme) at 3.53 p. m. The pupils at that time measured one eighth of an inch in diameter, and the pulse was 87. At four p. m., though the patient was still talking incoherently and incessantly, the pupils became somewhat dilated; at 4.15 p. m. the pulse was reduced to 72. At 4.20 his pulse was 88, and on account of hypermetropia he could not read, and could only walk staggeringly. At 4.30 the pulse was 106, and he became quiet. When asked to put out his tongue he did so, and fell asleep without retracting it. At 5.30 his pulse was 114, and he was fast asleep, his skin dry, and pupils fully dilated. The respirations were 18, heavy and snoring. At midnight the pulse was 87. The next morning he was very subdued, and after that his recovery progressed from day to day, and in less than two months from the single dose of hyoscyamine, and after a period of complete sanity, he was discharged from the hospital. The attack of insanity had lasted two years before the administration of the drug, and convalescence was traceable to the day after the establishment of the physiological action of the drug. He had no other medicine whatever. Other cases illustrative of the therapeutical action are given. From these cases Mr. Dawson observed that the potency and permanency of the action of individual doses of this drug are unequaled by any other. He says, "In about fifteen minutes the most violent and excited patient can be thrown into a comparatively deep sleep by about one grain of the amorphous alkaloid, and on waking from his slumber almost invariably frees himself also from the delusions and hallucinations which have bewildered him; and I can adduce numerous instances in which this recovery, rapid as it has been in its accession, has also been thorough and enduring." One disadvantage of this remedy would appear to lie in the fact that the dose required to combat the extreme excitement would cause danger to a person who has been reduced by fury, starvation, and loss of sleep; and caution should be exercised to prevent a patient, who is partially under the paralyzing and hypermetropic influences of this drug, from injury and bruises liable to occur from contact with hard substances.

The use of hyoscyamine in certain forms of senile dementia, excepting those in which it is contra-indicated from reasons above mentioned, caused a decided arrest of excitement. Mr. Dawson cautions against the giving of an insufficient dose, say half a grain, as this latter dose

would produce cerebral excitement without complete motor paralysis, and this effect will continue through the whole period of the operation of the medicine. Though he gave three grains with impunity, yet one grain never failed to put a speedy termination to the most violent excitement. The following is the form in which hyoscyamine is administered:—

Ry Hyoscyamine . . . . .	gr. j. or 0.064 gramme.
Spt. etheris . . . . .	minims viij.
Alcoholis . . . . .	minims xxiv.
Aq. font. . . . .	ad ʒj. 29. c.c.

M. ut fiat haustus.

Mr. Dawson concludes his paper by suggesting the use of this remedy in gonorrhœa, spasmodic stricture of the urethra (in which he has seen benefit from it), in colliquative sweatings, etc.

**Anhidrotics.**—Dr. Fothergill<sup>1</sup> applies this term (*hidrosis*, excessive sweating, and *a*, privative) to those agents which check profuse perspiration. He writes that profuse perspiration promotes tissue waste or destructive metamorphosis, and hence it is very desirable to bring to the aid of all wasting disease therapeutic agents which he names anhidrotics. When water assumes a gaseous form latent heat is used up and cold is produced. In severe exercise the body's surface becomes warm, perspiration is secreted, and its evaporation produces a restoration of the normal temperature. In cold weather, on the contrary, the skin is dry, sweating does not occur, and the normal temperature is maintained. Again, the surface heat of the body in a febrile state does not produce perspiration, and when in the latter case the sudoriparous glands become active the temperature of the surface falls. Moreover, nitrogenized substances and the saline constituents are eliminated by perspiration.

In view of these facts, when there exists a tendency to exhaustion or a debilitated condition, profuse perspirations drain the system and increase the debility. If in these conditions the excessive perspiration can be checked, the loss of the "body income" will be diminished and food assimilation will be assisted.

The anhidrotics may be divided into two classes, those used externally and those used internally. Among external anhidrotics are the mineral and vegetable acids, and heat applied by means of hot water. Among internal anhidrotics are dilute phosphoric acid; other acids; astringents, such as sulphate of copper, acetate of lead, tannin, or gallic acid; oxides, as of silver or zinc; tonics, as quinine; and some members of the solanaceæ, as belladonna and hyoscyamus. We do not yet know how the astringents act, but we do know that their effects are caused neither by coagulating albumen nor by contraction of circular muscular fibre.

<sup>1</sup> Practitioner, December, 1876.

The following are efficient combinations in the administration of anhidrotics: dilute sulphuric acid in a solution of sulphate of magnesia; sulphate of copper combined with opium where the phthisical cough prevents sleep. These two latter may conveniently be combined in pill form with pilulæ aloes et myrrhæ, in order to keep up the action of the bowels.

Tannin and gallic acid are not usually given alone, but are combined with mineral astringents and acids. Thus:—

R $\bar{y}$ Magnesii sulph.	3j. or 1/295 grammes.
Acidi phosphorici dil.	minims xx.
Infus. rhatanis.	3j. or 31/111 grammes. M.

S. To be given three times a day in the different forms of phthisis.

The latter prescription may be used in the day-time, and the copper and opium pill at bed-time. Ringer advocates the combination of quinine, sulphate of zinc, and sulphuric acid at bed-time.

Oxide of zinc is very effective when combined with hyoscyamus, and controls the exhausting night sweats quite efficiently. The union of these two anhidrotics is more certain than either one alone.

Dr. Fothergill finds that belladonna is the most potent of all anhidrotics. He mentions the fact that Dr. Ringer was the first to point out this property of belladonna. Dr. Fothergill claims for belladonna the same efficiency in checking the exhausting night sweats of phthisis as for digitalis in giving tone to the heart. Though neither of these agents are as potent in the last and final stage of the disease, yet the action of each in the early stages is very pronounced. The method of using belladonna as an anhidrotic is by the hypodermic injection of its alkaloid, atropia (according to Dr. Ringer), in doses varying from one one hundredth to one two hundredths of a grain (.00068 gramme); Dr. Fothergill, however, uses one seventy-fifth to one twenty-fifth of a grain by the mouth; when one seventy-fifth is ineffective he prescribes one fiftieth; if, the next week, that has failed, one twenty-fifth is ordered. This usually produces the desired effect, after which smaller doses will maintain it. His experience, though at present limited, leads him to say that belladonna or atropine in hidrosis may be freely used without apprehensions as to the appearance of any serious toxic effects. Belladonna is an agent which produces marked toxic effects, such as dryness of the throat and a little indistinctness of vision, long before a fatal dose is reached, and is not a treacherous drug by any means. Twenty to thirty-five minims of the tincture of belladonna of the British Pharmacopœia,<sup>1</sup> corresponding to from eight to fourteen minims of the offic-

<sup>1</sup> In the United States Pharmacopœia tincture of belladonna is in the proportion of one part of the root and seven and three fourths of spirit; in the British Pharmacopœia the proportion is one part in twenty; consequently, our United States tincture is two and a half times stronger than the British tincture.

inal United States Pharmacopœia tincture, are quite safe doses. The atropine may be given in pill, while the tincture is best combined with fifteen minims of dilute phosphoric or sulphuric acid, and may be taken at bed-time, or when the patient awakens at about two or three in the morning. In those cases where a slowly spreading caseous pneumonia involves one lung to the third, fourth, or fifth rib, with a fast pulse, a temperature over 100° Fahr., cough, profuse night sweats, and rapid wasting of the flesh, the action of anhidrotics has the most promising effect. This, combined with tonic and other remedies, at once inaugurates an improvement which without the anhidrotic fails to appear.

*On the Cholagogue Action of Euonymin, Sanguinarin, Iridin, Lepandrin, Ipecacuan, Colocynth, and Jalap.*—Professor Rutherford and M. Vignal, in continuation of their experiments on the biliary secretion of the dog,<sup>1</sup> report<sup>2</sup> that euonymin, the active principle of the bark euonymus atropurpureus, which is given by the American eclectic practitioners as a mild aperient in doses of one to two grains, though "the substance they use is very complex, only a portion of it consisting of the active principle," produces active purgation without griping. Professor Rutherford used in his experiments an impure resin prepared by precipitating the tincture of euonymin with water acidulated with hydrochloric acid. The result apparently shows that five grains of this resin powerfully stimulated the liver and increased the intestinal secretion; probably, also, the purgative effect of this drug is chiefly due to increased flow of the bile. "At any rate these experiments clearly show that this substance is worthy of receiving far greater attention in practical medicine than it has done hitherto."

Sanguinarin is also given by American eclectics in doses of one fourth of a grain to a grain (0.016 to 0.065 gramme) as a hepatic alterative. This resin was prepared in a manner similar to that of euonymin, and, when mixed with bile and placed in the duodenum, powerfully stimulated the liver. Though the bile secreted was more dilute after the above stimulation, yet more biliary matter was secreted in a given time. The secretion of the intestinal glands was slightly increased by these doses. For the clinical effects of the drug the reader is referred to the statements of Tully and Mothershead.

Iridin, from iris versicolor, or American blue flag, is usually given in doses of from one to five grains (0.065 to 0.325 gramme), and in its action has been supposed to unite cholagogue and diuretic with aperient properties. An anonymous writer in the *Lancet*<sup>3</sup> states that "it is gentler in its action than podophyllin, and more reliable when a slight cholagogue action is required for a lengthened period." This oleo-resin,

<sup>1</sup> Vide previous report in the JOURNAL for March 16, 1876.

<sup>2</sup> Journal of Anatomy and Physiology, October, 1876.

<sup>3</sup> August 30, 1872.

when mixed with a little bile and water and placed in the duodenum, very powerfully stimulated the liver. It is not as powerful as large doses (four grains or 0|260 gramme) of podophyllin, but it is more powerful than euonymin. It is also a decided stimulant of the intestinal glands, and does not irritate the intestinal mucous membrane so decidedly as "podophyllin," while the purgative effects are greater than euonymin.

Leptandrin, from leptandra Virginica or veronica Virginica, is a remedy also much lauded as a cholagogue and tonic by the eclectics. The dose for a man is one half a grain to three grains (0|082 to 0|195 gramme) three or four times daily. Unless the biliary solvent was present, Professor Rutherford found that this resin produced scarcely any appreciable effect.

Ipecacuan. Sixty grains of this drug were mixed with a small quantity of bile, and when placed in the duodenum this mixture powerfully stimulated the liver. Even three grains in a small dog produced very marked effect on the biliary secretion. "The bile secreted under its influence was of normal composition as regards the biliary matter proper." Though no purgation followed its administration, the secretion of mucus from the small intestine was increased. "The increased biliary flow . . . could not be ascribed to any relaxation of 'spasm of the bile ducts,' for that no such thing existed was clearly shown by the free flow of the bile before the substance was given. Nor could it be owing to contraction of the gall-bladder, for the cystic duct was clamped. The result of these experiments will therefore lead to new speculations regarding the pathology of dysentery;" for it is well known to the profession how valuable this drug has become in the treatment of dysentery and that form of diarrhoea which is associated with catarrhal inflammation of the intestinal canal.

Colocynth appeared to stimulate the flow of bile, though the fluid secreted contained more water than is found in normal bile. This drug appeared, also, to stimulate the intestinal glands.

The action of jalap on the liver seems analogous to that of colocynth, though its effect on the intestinal glands was not so marked. It, however, produced watery dejections.

These experiments illustrate quite clearly that catharsis may exist as a concomitant of increased biliary flow, and that biliary flow may occur without catharsis; when, however, the intestinal mucous membrane is irritated, the flow of bile is usually increased.

This investigation of Professor Rutherford is not yet completed, and we shall hope that his future generalizations may be of great value in clinical medicine.

*Analysis of Dr. Ridge's Food.* — The following analysis appeared in the *Medical Examiner*, November 2, 1876: —



Moisture . . . . .	9.31
Oil (fat) . . . . .	.92
Nitrogenous (or flesh-forming) matter . . . . .	5.25
Starch, sugar, and digestible fibre . . . . .	83.63
Cellulose . . . . .	traces.
Ash . . . . .	.89
	<hr/> 100.00

### THE PUBLIC HEALTH OF PHILADELPHIA IN 1875.

THE opening sentences of this report<sup>1</sup> give evidence of the great, indeed the almost paramount importance which, in the opinion of the Philadelphia Board of Health, attaches to the registration of deaths as a part of sanitary work, and as affording a means of determining the condition of the public health. In common with all other American cities of considerable size, Boston alone excepted, Philadelphia has made the registration of vital statistics a department of sanitary administration, placing this work where it naturally belongs, and in such relations that its gathered facts may be of instant and practical use. Placed subordinate to the local board of health, as is the general custom in this country, the office of registrar is immediately available for promoting the public welfare to an extent far beyond what is practicable with the registry of vital statistics upon an independent basis. We are glad to see this matter so fully recognized in Philadelphia.

The annual death-rate of the city in 1875 was 22.24; this is in excess of its recent death-rates, and is accounted for by the unusual prevalence of certain zymotic diseases, notably scarlet fever, diphtheria, and croup. The comparatively low death-rate of Philadelphia is a subject that has repeatedly attracted attention and provoked discussion; there are those who accept the published rate as a truthful indication of the salubrity of the city of home-steads; there are others who insist vigorously that there is a gross error somewhere, and that either the estimate of the population is larger or the number of recorded deaths is smaller than the actual. The report before us shows many signs of care and thoroughness in analyzing and arranging the material supplied by the registration bureau; its tables are elaborate, its charts are models of beauty and clearness, and its editorial comments are comprehensive. But we find two or three expressions that seem to give color to the suspicion that some of the primary data of births, marriages, and deaths do not find their way to the office of record; we infer that the defect is to be charged to the public sentiment and to a certain laxity of law rather than to inefficiency on the part of the registration officers.

The report contains a full description of the extensive stock-yards and abattoir in West Philadelphia. It will be remembered that the establishment of these in the midst of the city, on the banks of the Schuylkill River, met with much opposition in 1875; the influential Pennsylvania railroad company won the day, however, and the immense public slaughter-house and its appendages, covering an area of twenty-three acres, are now on trial. All the modern appliances appear to have been introduced to render the business of

<sup>1</sup> *Report of the Board of Health of the City and Port of Philadelphia for the Year 1875.*



slaughtering as innoxious as possible. It must be reassuring to the Philadelphians that it is the opinion of their board of health, "founded upon an attentive consideration of the subject that the management of the abattoir can be conducted in a manner free from offense, and without causing any nuisance whatsoever."

We have heard the surface drainage of Philadelphia defended as a much better system of disposing of house slops than any plan of under-ground drainage yet devised, and as one element, indeed, in determining the low death-rate of the city. Centennial visitors to Philadelphia from well-sewered cities will nevertheless be inclined to sustain, from their own observations, the following remark in this report: "Surface drainage is a frequent cause of nuisances upon the streets. In winter the water discharged into the gutters on the sidewalks and in the streets forms ice, which, in protracted periods of very cold weather, fills the gutters and covers the sidewalks, presenting a dangerous surface to walk upon. In the summer season it is frequently the cause of filthy and offensive gutters."

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### MODERN THERAPEUTICS.<sup>1</sup>

THE fourth edition of this popular work calls for little additional comment. It has been greatly enlarged, compilations of the late Dr. Napheys having been added by Dr. Brinton, who has also endeavored to supply some of the work left incomplete by the author. That the book contains a vast number of formulas and prescriptions with directions for use is about all that can be said of it.

We can hardly refrain from criticising the title in its application to a work illustrative of empirical rather than scientific triumph. We might add that the labors in physiological research of many a hard student do not merit the sneer implied in the sentence, "Nihilism in therapeutics . . . comes from a pursuit of that *ignis fatuus*, physiological therapeutics." In point of fact some of the indications for treatment are borrowed by the author from such researches; as, for instance, Dr. Fraser's investigations on calabar bean.

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### THE SANITARY INSPECTION OF PUBLIC SCHOOLS.

WE have watched with much interest the measures taken by our city school board with reference to the appointment of a medical inspector for the public schools, and we confess a feeling of disappointment that so little fruit has developed as yet in fulfillment of the project. In our view, the arguments in favor of systematic medical superintendence of the schools of a great city are convincing; and our hope has been that the city of Boston would set an early and positive example in this as in other good municipal works. At a hearing before a committee of the school board of this city, held a few weeks ago, the

<sup>1</sup> *Modern Therapeutics. A Compendium of Recent Formulae, Approved Treatment and Specific Methods in Medicine and Surgery.* By GEORGE H. NAPHEYS, A. M., M. D., etc. Fourth Edition, rewritten and enlarged. Philadelphia: D. G. Brinton. 1877.

evidence brought forward by medical men and others, expert in matters pertaining to school hygiene, was conclusive that the proper administration of our public-school system needs imperatively the adjunct of sanitary supervision. This evidence has been published, and we commend it cordially to the study of all who have an interest in our public schools, and especially to the attention of intelligent parents, who surely ought to feel some solicitude concerning the physical as well as the mental training of their children at school. If, after examining the arguments presented in this pamphlet, the reader is in doubt concerning the expediency of the innovation there advocated, let him apply the testimony of his own special senses, and by a personal inspection of some of the school rooms described in the third annual report of the city board of health, let him test the observations which have been made with such unanimity with regard to the lighting, heating, ventilating, and general sanitary care of these places. Fully convinced of the need which exists for the appointment of a properly trained medical school inspector, who shall give his entire attention to the various duties which his office would impose, we trust the subject will not be permitted to pass out of sight in the councils of our reorganized school board.

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#### TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION.

A PERUSAL of the twenty-seventh annual report of the association shows that the work accomplished at Philadelphia last spring, although in some respects bearing results of value and interest, was nevertheless not quite equal to what might have been expected with a less dangerous rival in the field than the great exhibition. Perhaps the most striking features of these reports, certainly of the present one, is not so much the value of the individual papers as the completeness of the record of the discussions held in the various sections. Such a record is well-nigh indispensable for a correct appreciation of the work done at the meeting, and is none the less instructive for its somewhat off-hand style, partaking more of the character of a newspaper report than a carefully prepared literary production. The papers which have been published by the association are striking chiefly for the absence of any great amount of original thought. We must not forget, however, the disadvantages under which the meeting labored, and that the fruit of the year's work was divided between this and the International Congress, the report of which we are looking forward to with great interest. Among the more prominent papers may be mentioned that of Dr. Woodward delivered before the section of medical jurisprudence on the application of photography to micrometry with special reference to criminal cases. The discussion which followed and was participated in by Drs. Richardson, Woodward, and others was quite animated. The importance of a thorough appreciation of the merits of this question has been frequently exemplified in this neighborhood, and particularly in the trial lately held in New Hampshire, where Dr. Richardson was a prominent witness. Dr. Sayre succeeded in producing a popular communication on Pott's disease, which subject is amply illustrated in the text of the report, enabling those who desire

to emulate his skill in the application of the plaster-of-Paris bandage an excellent opportunity to make themselves acquainted with his method. Dr. Hewson's paper on Pirogoff's amputation displays an amount of enthusiasm which we hardly think this operation merits, although a more careful adherence to the rules laid down by the writer might make this operation a more popular one than it is at present.

The increased attention given to the study of state medicine and public hygiene is beginning to make itself felt throughout the country, and these subjects take up a considerable space in the volume. We have already alluded to the address of the president, Dr. Marion Sims. In view of the work done last spring and autumn by the profession we have reason to look forward hopefully to the meeting at Chicago, now so near at hand. We might add that it seems a matter of regret that the report of one year should not be placed before the members of the profession until they are already engrossed with the work which is to be displayed at the following meeting.

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#### MEDICAL NOTES.

— It is announced that the position of serjeant-surgeon to the queen, the highest medical honor in the gift of the British Empire, which was made vacant by the recent death of Sir William Fergusson, Bart., has been conferred upon Sir James Paget. The position of serjeant-surgeon extraordinary to the queen has been given to Mr. Prescott G. Hewett, president of the Royal College of Surgeons, while Mr. J. E. Erichsen, a member of the Council and Court of Examiners of the Royal College, has been appointed surgeon-extraordinary to her majesty.

— In a paper on mental anxiety as a cause of granular kidney, Dr. T. Clifford Allbutt reports to the *British Medical Journal* of February 10, 1877, that during the last two years he has made notes of thirty-five cases of granular kidney occurring in private practice, and finds a marked history of mental distress or care, or both, in twenty-four of them. As a result of these causes he finds that granular kidney follows more frequently than degeneration of the brain or spinal cord, and far more frequently than primary failure of the heart's muscle.

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#### MASSACHUSETTS GENERAL HOSPITAL.

##### SURGICAL CASES OF DR. CABOT.

[REPORTED BY C. W. COOPER.]

*Lithotomy.* — The patient, a boy, twelve years of age, entered the hospital January 9th. For a year he had been suffering from symptoms of trouble in the bladder, but at no time had these symptoms been urgent in character. They consisted of occasional pain in the penis after micturition, occasional sudden interruption of the flow of urine, pain in the region of the bladder on running or jumping, and abnormal frequency of micturition. Upon the introduction of a sound, the instrument came at once upon what was apparently a

hard, small stone. On January 13th, lateral lithotomy was performed. A curved lithotomy staff having been introduced into the bladder was held firmly in the median line, well drawn up against the symphysis pubis to lift the bulb as far as possible out of danger. An incision three inches long was then made downwards and outwards from a point on the median line, an inch and a half above the rectum. This incision was carried down through the tissues, and the staff laid bare through the membranous portion of the urethra.

The blade of the knife, carefully adjusted in the groove on the surface of the staff, was passed along this groove, completing the deep section, cutting through the left lobe of the prostate, and opening the bladder. The stone was then removed with forceps, and found to be a mulberry calculus with a very rough surface, spherical in shape, about one inch in diameter. No vessels were tied. A *canule à chemise* was inserted, lint being packed about the tube.

Twenty hours after the operation everything was removed from the wound; no hæmorrhage followed; no dressing was applied, but attention was given to insure cleanliness of the parts. There was severe pain the first night, and pain continued to be a troublesome symptom for some time. With this exception the patient did well, and in seventeen days from the date of operation urine had ceased to pass through the wound. Nine days later the perineal wound had entirely healed; the boy was, however, confined to bed for a short time longer by a mild attack of orchitis which yielded to treatment, and on February 26th he was discharged, well.

*Incised Wound of Knee-Joint.* — W. K., aged seventeen, employed as boy in an engraver's establishment, while endeavoring to reach an elevator, slipped and fell into the open space below. Having a machine knife in his hand, he fell upon his left side with the knife beneath him. He was brought to the hospital half an hour after the accident, and there was found to be an incised wound two inches long, inside and above the inner border of the patella of the left knee. A finger was passed without difficulty into the joint, by which the lower surface of the patella could be felt and the cut edge of the capsule of the joint clearly made out. A director was then passed down inside the capsule, and a fresh incision made at right angles to the original one, about two inches long, opening the joint to the bottom. The wound was then thoroughly washed with a solution of carbolic acid, one part to forty. One vessel only required ligature, which was tied with carbolized silk, the ends cut short. The flaps were united by the interrupted suture, carbolized silk being also used here.

Compresses saturated with carbolic wash, one part to eighty, were applied, and the leg firmly fixed by being placed upon a splint designed for cases of excision of the knee. After about twelve hours, during which time the dressing was kept saturated with fresh carbolic wash, Lister's antiseptic dressing was applied.

The next evening severe pain in the wound came on, associated with no inconsiderable constitutional disturbance, indicated by great restlessness, flushed skin, rapid pulse, and high temperature. In consequence the dressing was removed, and there was found to be swelling, with a blush about the wound, and considerable tension upon the sutures, the removal of which from the lower portion of the wound permitted the escape of decomposed blood and

pus; the whole amount evacuated on pressure measuring about one drachm and a half. The original dressing of compresses saturated in a solution of carbolic acid was then substituted for the Lister dressing, and a full opiate administered, after which the patient slept quietly the rest of the night. From that time the case progressed rapidly to recovery. For four days the discharge was quite free. On the fifth day the sutures remaining in the upper part of the wound were removed; the flaps gaped about three quarters of an inch at this point, but presented a floor of granulations with no apparent opening into the joint. Two days later the lower part of the wound also showed a flat, granulating surface with no apparent opening. That is to say, one week from the date of injury there remained as a result nothing more than a superficial wound, healing by granulation, with no pain in the knee, no swelling of the joint, in fact no evidence that the capsule had been opened by the accident. The healing process was completed a month later; the excision splint was then removed, the power of motion was found to exist in the joint, and the patient was discharged with the leg in the ham-splint, which he was advised to wear two or three weeks as a precautionary measure. The splint was returned in a few weeks with a report that the patient was walking about nearly as well as before the accident.

*Strangulated Hernia.* — CASE I. M. G., an Italian, entered the hospital December 26th. The patient had been aware for six months of the existence of a femoral hernia on the right side. The tumor was reported to have disappeared frequently during that time, only to reappear again in a week or two. For eight days before entrance there had been no passage from his bowels, and during the last four days he had suffered constantly from pain in the abdomen and attacks of vomiting; the matter vomited consisting at first of food, later, of an offensive yellow liquid. At the time of admission there was a tumor in the right inguinal region as large as a fist, resonant on percussion. The patient had a fecal breath, and vomited stercoraceous matter at frequent intervals. No pain, but tenderness over the region of the tumor. A diagnosis of strangulated femoral hernia having been made, taxis was at once employed. The characteristic gurgle of intestine returning to the abdominal cavity was heard, and after twenty minutes of taxis the tumor was reduced to about half its original size, and the resonance on percussion had disappeared. Taxis was continued for some time longer, but no additional progress was made. The patient was then left for some hours with an ice-bag applied to the tumor, with the hope that the symptoms of strangulation might subside after the partial reduction. Stercoraceous vomiting continued, however, and the symptoms had not abated in the least at the end of that time. Taxis under ether was then tried with no result. An incision was at once made four inches in length, directly over the tumor in a line from above downwards. In this incision all the soft parts were consecutively divided down to the sac; the sac was then perforated, elevated upon a director, and divided.

The hernia was found to consist of omentum, no intestine being present. Adhesions to the sac were broken up by the finger, the stricture divided with a herniotomy knife, and the mass returned to the abdomen. The flaps were united by the interrupted suture, and a sponge covered with compress bandaged

upon the wound. All vomiting ceased two hours after the operation. Brandy and beef tea were given in small quantities, and the patient kept under the influence of opiates for three days. The abdomen had been tympanitic, but on the fourth day there was no pain, no vomiting, and during the afternoon there was a spontaneous free evacuation of the bowels. From this time the man improved constantly, and in six weeks from the date of operation was discharged, well.

CASE II. P. D. entered the hospital January 23d. He reported having had a hernia on the right side for nine years, which descended into the scrotum four years after its first appearance, and remained there. Four days before entrance he received a blow in the abdomen, from which the pain was so severe as to render him helpless. Vomiting soon came on, and he continued to vomit at intervals up to the time of admission; there was also persistent constipation. He observed after the accident that the tumor in the scrotum had increased in size, and it soon became red and tender.

Examination revealed a tumor in the right side of the scrotum as large as two fists, red, tender, resonant on percussion; no impulse was communicated on coughing; abdomen somewhat swollen and tender. The patient was at once etherized, and taxis tried for an hour with apparently no effect, after which the hernia was aspirated, and a small amount of serum and gas withdrawn. Taxis was again employed, and a certain amount of intestine evidently returned to the abdominal cavity. By this the tumor was but little diminished in size, yet no further interference was thought advisable until by observation the question whether the symptoms would persist or not should be settled. The patient was placed in bed, and cold compresses applied to the tumor.

There was no vomiting that night and no distressing pain. The next afternoon stercoraceous vomiting began, and in consequence herniotomy was determined upon. An incision was made over the tumor about four inches in length, going down to the sac; the sac was then divided upon a director and the contents exposed. A mass of omentum was found in front, with a loop of intestine six or seven inches long forming the posterior part of the hernia. The bowel was flaccid and of a dark-brown color, evidently gangrenous. There were adhesions posteriorly. The constricting band was divided. The intestine was left *in situ*, while a considerable portion of the omentum was cut away. Several vessels were tied, and the upper part of the wound brought together with sutures, and a dressing of compresses saturated with a solution of carbolic acid, one part to eighty, applied. Vomiting continued at intervals through the evening, although the patient was able to retain some brandy and beef tea. The next day he was very weak, with feeble pulse and distressing abdominal pain. As no food was retained by the stomach, enemata of one ounce of brandy and two drachms of Valentine's extract of beef were given every three hours. At five o'clock the next morning perforation of the bowel took place, with escape of feces. Soft compresses wrung out of hot water were now applied, and changed every five minutes, while the enemata were given every two hours.

He continued to grow weaker, though on the evening of the next day he was able to retain milk punch given by the mouth in small quantities. Dur-



ing the night progressive prostration, hiccough, and coldness of the surface showed progress toward a fatal termination, and on the next day, the fourth from the date of herniotomy, the patient died.

### LETTER FROM ZURICH.

MESSRS. EDITORS, — Children's diseases make so large a percentage of the practice of the average physician, that I have translated with this idea — not verbatim — the first hour of a course of lectures by Dr. Horner, professor of ophthalmology in the University of Zurich, on the Eye Diseases of Children. This hour began his lecture course for the winter semester. Horner is known more in America as a clinical teacher than as a writer. These lectures, however, are to go to press, and will probably appear towards the end of the current year. The author is one of the most sensible, clear clinical teachers in ophthalmology; free from skepticism, from dogmatism in any special ophthalmological school, practical, in the good sense of the word, he needs no preface in the eyes of his confrères and students, and no further introduction to the general profession in America. He is at the same time a specialist.

Of 20,760 eye patients in Horner's clinic 5390 were children, or more than twenty per cent. Cohn, of Breslau, up to 1873 had examined 111,199 children with all forms of external diseases of the bulb and appendages, of anomaly of refraction and accommodation, of diseases of the optic nerve, intra-ocular layers, and of the orbit, with special reference to ætiology. His figures are to be relied on, though Horner's statistics differ somewhat from Cohn's. Horner's figures are made from a *poliklinik*, where retinal and optic nerve cases, results of meningitis, tuberculosis, scarlatina, etc., are least likely to appear, such patients going to a hospital.

Tabulated, the list is as follows: —

Diseases of	Children.	Adults.
Cornea.....	27.3	20
Conjunctiva.....	21.7	29
Refraction and accommodation.....	20.6	11
Lids.....	10.1	10
Muscles and nerves.....	9.9	3.4
Iris and choroidea.....	2.8	6.8
Lens.....	2	5.6
Lachrymal apparatus.....	1.6	2.5
Retina and opticus.....	1.4	4.4
Bulb and orbit.....	1.42	2.9
Sclera.....	0.5	
Corpus vitreum.....	0.38	0.5

The following deductions may be made from this table: —

(1.) Diseases of the cornea, conjunctiva, lids, muscles, and nerves, and refraction and accommodation anomalies represent nearly the whole field of eye diseases of children.

(2.) Diseases of the cornea and conjunctiva make nearly one half of the whole category.

(3.) The large ratio of anomalies of refraction and accommodation, namely,



20.6 in children against eleven in adults, is attributed to the frequent occurrence of myopia in Swiss children. Wells's figures for England are much smaller for both children and adults.

(4.) The ratio of diseases of muscles and nerves is high from the same fact as alluded to in regard to myopia in Switzerland.

(5.) Iritis and choroidal troubles play a small part in diseases of children.

*Diseases of the Lids.* — The gross anatomy of the lids was given according to Waldeyer's plate,<sup>1</sup> particular emphasis being laid upon the clinical significance of the anatomical arrangement of the conjunctiva into conjunctiva bulbi, conjunctiva tarsi, and fornix conjunctivæ. The tarsus is not a proper cartilage, but is thickened, hypertrophied connective tissue, or, to literally translate Waldeyer, is a peculiarly modified subconjunctival tissue, and belongs to the conjunctival portion of the lid. The Meibomian glands are not dissimilar to the sebaceous glands of the skin; they are really organs of the skin, and not special to the lids. Sometimes the mouth of a Meibomian gland lies between two bundles of a muscle, known as the ciliary muscle of Riolan. Whether the anatomical position — an occasional one, not constant — has anything to do with control over the escape of the *sebum palpebrale*, or whether the epithelium of the excretory duct has a *membrana propria*, is not evident to Waldeyer. As to the skin of the lid, it is a fair clinical question to raise, whether we find its diseases different from those of the skin elsewhere. Horner regards it as a serious error that works on ophthalmology give different names to the skin diseases of the lids from those on dermatology. Skin diseases of the lids apply to ophthalmology only so far as they may lead to diseases of the bulb. Horner began with Hebra's classification of diseases of the skin, namely, anomalies of secretion. Seborrhœa, a disease of the fat glands of the lid, first claimed his attention. Each lid has about one hundred and fifty cilia arranged in two rows, sometimes in three. Each cilium has four to six glands, so that from six to nine hundred fat glands open on the free border of each lid; these are Donders's figures. As a rule these glands are at the base of the cilia. Obviously an immense secreting surface is here exposed, which in children plays its highest physiological and pathological part; towards middle life and in old age the secretion is less abundant. Seborrhœa may be of a fluid or dry character. When it is fluid the skin of the face is implicated. Its objective symptoms are a thickened tarsal edge, cilia not long, and with a loss of the normal handsome curve; the length of the cilia in upper lid is about twelve m. m.; edge of lid looks as if covered with dust, but is really smeared with a secretion resembling golden fat or sometimes thin cream. Seborrhœa sicca is a modified form of the other. Dermatologists name it pityriasis simplex, and it often is concomitant with the same affection of the eyebrows and hairy scalp. When scratched away, the thick layer of the lid border is exposed to view and is often red and shiny, the picture of blepharo-adenitis; when lasting a long time the beauty of the cilia suffers, and they are reduced in number, an alopecia furfuracea. The subjective symptoms are local heat, with a sense of stimulation. The principal causes of dry seborrhœa are warm rays of artificial light falling directly upon the eye, particularly when the person is engaged in read-

<sup>1</sup> Handbuch d. gesamt. Augenheilkunde, 1 Bd., 1 Th., page 234.

ing; exposure to moisture from an under-ground residence, and foul air loaded with tobacco smoke. The tendency is to rub the lids, and increase the redness and irritation. Disease is overcome spontaneously, especially after puberty, when the number and strength of the cilia is less, and their curvature is less pronounced. The lids remain reddish, and are always sensitive to stimulation. This condition disposes to peri-granular diseases, as trachoma, and may even assume a pustular form, as acne. Seborrhœa sicca is often found in females, and most frequently with menstruating girls; so common is this concomitance that it is worthy of remark. It is a hanger-on of the strumous diathesis, and often suggests the possibility of tuberculosis; as a local affection it may run over into eczema chronica.

It has been remarked that seborrhœa falls chiefly upon patients who are either myopic or hypermetropic. Horner has noticed it very largely with hypermetropia, is unable to account for the association farther than to suggest the possibility that the deep orbits often found in such patients and the short antero-posterior axis of the bulbs predispose to entropion and to lid affections in general. Arlt has found seborrhœa very frequently in flat-built faces. Horner called attention to the form of the face and the structure of the eye as elements worthy of investigation in connection with the ætiology of seborrhœa, and remarked that Professor Roosa read before the International Ophthalmological Congress in Philadelphia, last September, a paper on the Relations of Blepharitis Ciliaris to Ametropia.

At this point the hour closed.

In a future letter I propose to briefly note a few special cases occurring in Professor Horner's clinic, of peculiar interest to ophthalmologists.

Yours truly,

E. S. P.

ZURICH, SWITZERLAND, January 15, 1877.

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### NEW INSTRUMENT,—THE OPIATOR.

MESSRS. EDITORS,—Messrs. Codman & Shurtleff have recently placed on general sale an instrument manufactured by them for administering with *accuracy* opiated and other small enemata per anum. It consists of a small glass syringe with a *metal* nozzle (*C*) of the full size of that of a large syringe for adults, which insures the deposit of the intended quantity quite above the sphincter. One cannot be certain of this with the ordinary nozzles of common small syringes. The nozzle of the new syringe is also bulb-shaped, and can thus be more readily passed; and, being of metal, is in no danger of being broken, as are those of glass or other brittle material, nor is it likely to wound the bowel. The glass barrel (*A*) enables the operator to *see* that the desired quantity has been taken up and carried to its destination, which cannot be done when the instrument is of metal or rubber. Any quantity from a drop to a fluid ounce can thus be given with *absolute certainty*. This is not exactly a new instrument, for it has been thoroughly tested in this neighborhood,—one practitioner, who vouches for its utility, having within a dozen years or so put into use several scores of them in his own private practice. Other

physicians have tried and found them reliable and exceedingly valuable. In dysentery, requiring frequent small enemata of starch water and laudanum, they are remarkably convenient. For the administration of a solution of morphine, in drop doses, per anum, as a substitute for subcutaneous injection, this instrument is equally effective. Alcoholic and other stimulant injections, per anum, can be readily given by it, and in all respects it will answer the purposes of an ordinary small or ear syringe. Every physician who has tried it has commended it, and any one on a single trial will recognize its usefulness. Every professed nurse should have one in her outfit.



The appended wood-cut, one third size, will give a good idea of the instrument. It is firmly made, nicely fitted in all its parts, screw capped, and nickel plated. The price is quite moderate. As a piece of workmanship it does credit to the manufacturers. They call it *the opiator*. X.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING MARCH 10, 1877.

	Estimated Population, July 1, 1877.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1876.
New York	1,077,228	526	25.39	27.46
Philadelphia	850,856	331	20.35	22.88
Brooklyn .	527,830	214	21.08	24.31
Chicago . .	420,000	136	16.84	20.41
Boston . .	363,940	114	16.27	23.39
Providence	103,000	33	16.66	18.34
Worcester	52,977	33	32.39	22.00
Lowell . .	53,678	12	11.62	22.21
Cambridge	51,572	21	21.17	20.54
Fall River	50,370	17	17.53	22.04
Lawrence .	37,626	19	26.26	23.32
Lynn . .	33,524	12	18.61	21.37
Springfield .	32,976	6	9.46	19.69
Salem . .	26,739	11	21.39	23.57

BOOKS AND PAMPHLETS RECEIVED. — A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M. D., and William Pepper, A. M., M. D. Philadelphia: Lindsay and Blakiston. 1877. Pp. 1012. (For sale by A. Williams & Co.)

Hearing on the Appointment of a Medical Inspector for the Public Schools, November 23, 1876. Boston: Rand and Avery. 1877. Pp. 15.

Transactions of the New York Odontological Society. Regular Meetings, 1876.

Annual Catalogue of the Albany Medical College, Medical Department of Union University. 1877.

DR. BENJAMIN H. HARTWELL, of Ayer, Mass., Assistant Surgeon Tenth Regiment of Infantry, M. V. M., has been appointed an examining surgeon of the Pension Office.